

SEQUENCE LISTING

<110> Falco, S. Carl
Cahoon, Rebecca E.
Rafalski, J. Antoni

<120> Vitamin B Metabolism Proteins

<130> BB-1201

<140>

<141>

<150> 60/096,342

<151> August 12, 1998

<160> 16

<170> Microsoft Office 97

<210> 1

<211> 933

<212> DNA

<213> Zea mays

<400> 1

```
atggcgcggc cgccgaccc atccgtcgcc ctgcccgtctg acaccggccg tgtgctcagc 60
atccagtcac acaccgtcca ggggtatgtt ggcaacaaat cggccgtctt tcccctgcag 120
ctccttggct ttgatgtgga tccaataaac tctgtacagt tttctaatac tacaggatac 180
ccaacattta gaggtcaggt tcttaattgc aaagagctct gggaccttat tgaaggactg 240
gaggaaaatc agttgcttca ttatacccat ttattaacag gttatatagg ctcagtttcc 300
tttttagata ctgtgctaca agttgttgag aaattgcatg cagttaatcc tgatcttgta 360
tatgtttgtg acccagttct aggtgatgaa ggaaaactat atgttctca ggaggtata 420
tctgtttatc aacagaaggt tgttccagtt gcttcaatgc ttacaccta ccaatttgaa 480
gttgaactac ttactggatt gaggatcacc tccgaagaag atggtttgac agcttgtaat 540
accctccaca gtgccggacc acagaaggtg gttataacta gtgctcttat tgaaggtaag 600
ctgctcctta tcggaagtca caaaaaaaca gaggaacaac agccagaaca atttaagatt 660
gagataccaa agatacctgc atatttcacg ggaactggag atttgacaac tgctctccta 720
ctaggatgga gtaataaata tcctgatagc ctcgagaaag cagcagaact ggcagtttcc 780
agtttgcagg cacttctgaa aagaactgtg gaagactata aaatggccgg cttcgacca 840
tcgaccagca gcttagagat ccggttgatc caaagccagg acgagatccg aaaccaact 900
gttacatgca aggctgtgaa gtatggaagc tga 933
```

<210> 2

<211> 310

<212> PRT

<213> Zea mays

<400> 2

Met Ala Arg Pro Pro Ile Leu Ser Val Ala Leu Pro Ser Asp Thr Gly
1 5 10 15

Arg Val Leu Ser Ile Gln Ser His Thr Val Gln Gly Tyr Val Gly Asn
20 25 30

Lys Ser Ala Val Phe Pro Leu Gln Leu Leu Gly Phe Asp Val Asp Pro
35 40 45

Ile Asn Ser Val Gln Phe Ser Asn His Thr Gly Tyr Pro Thr Phe Arg
50 55 60

200220 "T0081301" 022002

Gly Gln Val Leu Asn Gly Lys Gln Leu Trp Asp Leu Ile Glu Gly Leu
65 70 75 80
Glu Glu Asn Gln Leu Leu His Tyr Thr His Leu Leu Thr Gly Tyr Ile
85 90 95
Gly Ser Val Ser Phe Leu Asp Thr Val Leu Gln Val Val Glu Lys Leu
100 105 110
Arg Ser Val Asn Pro Asp Leu Val Tyr Val Cys Asp Pro Val Leu Gly
115 120 125
Asp Glu Gly Lys Leu Tyr Val Pro Gln Glu Val Ile Ser Val Tyr Gln
130 135 140
Gln Lys Val Val Pro Val Ala Ser Met Leu Thr Pro Asn Gln Phe Glu
145 150 155 160
Val Glu Leu Leu Thr Gly Leu Arg Ile Thr Ser Glu Glu Asp Gly Leu
165 170 175
Thr Ala Cys Asn Thr Leu His Ser Ala Gly Pro Gln Lys Val Val Ile
180 185 190
Thr Ser Ala Leu Ile Glu Gly Lys Leu Leu Leu Ile Gly Ser His Lys
195 200 205
Lys Thr Glu Glu Gln Gln Pro Gln Gln Phe Lys Ile Glu Ile Pro Lys
210 215 220
Ile Pro Ala Tyr Phe Thr Gly Thr Gly Asp Leu Thr Thr Ala Leu Leu
225 230 235 240
Leu Gly Trp Ser Asn Lys Tyr Pro Asp Ser Leu Glu Lys Ala Ala Glu
245 250 255
Leu Ala Val Ser Ser Leu Gln Ala Leu Leu Lys Arg Thr Val Glu Asp
260 265 270
Tyr Lys Met Ala Gly Phe Asp Pro Ser Thr Ser Ser Leu Glu Ile Arg
275 280 285
Leu Ile Gln Ser Gln Asp Glu Ile Arg Asn Pro Thr Val Thr Cys Lys
290 295 300
Ala Val Lys Tyr Gly Ser
305 310

<210> 3
<211> 413
<212> DNA
<213> Oryza sativa

<220>
<221> unsure
<222> (380)

<220>
<221> unsure
<222> (384)

<220>
<221> unsure
<222> (388)

<220>
<221> unsure
<222> (410)

<400> 3
gtttaaacaa gaagatggct tgaaagcttg caatgcgcta catagtgcctg gaccgcgaaa 60
ggtggtaata actagtgcac ttattgaaga taagctgctc ctcattggaa gccacaaaaa 120
agcaaaggaa caaccaccag aacaatttaa gattgagata cccaagatac ctgcatattt 180
cacgggcact ggagatttaa caactgccct tctactagga tggagtaata aataccctga 240
taaccttgga gagggcgctg aactggcggg atccatttgc aaggcaccac taaggagaac 300
tgtggaagac tataaaagac tgggtttgac cctccaacca acacctagag atccgcctgg 360
attcaaaacc aaggatgaan tccnaagncc caagatacat gcaagctgtg aaa 413

<210> 4
<211> 136
<212> PRT
<213> Oryza sativa

<220>
<221> UNSURE
<222> (127)..(128)..(129)

<400> 4
Phe Lys Gln Glu Asp Gly Leu Lys Ala Cys Asn Ala Leu His Ser Ala
1 5 10 15
Gly Pro Arg Lys Val Val Ile Thr Ser Ala Leu Ile Glu Asp Lys Leu
20 25 30
Leu Leu Ile Gly Ser His Lys Lys Ala Lys Glu Gln Pro Pro Glu Gln
35 40 45
Phe Lys Ile Glu Ile Pro Lys Ile Pro Ala Tyr Phe Thr Gly Thr Gly
50 55 60
Asp Leu Thr Thr Ala Leu Leu Leu Gly Trp Ser Asn Lys Tyr Pro Asp
65 70 75 80
Asn Leu Gly Glu Gly Ala Glu Leu Ala Val Ser Ile Cys Lys Ala Pro
85 90 95
Leu Arg Arg Thr Val Glu Asp Tyr Lys Arg Leu Gly Leu Thr Leu Gln
100 105 110
Pro Thr Pro Arg Asp Pro Pro Gly Phe Lys Thr Lys Asp Glu Xaa Xaa
115 120 125
Xaa Pro Lys Ile His Ala Ser Cys
130 135

<210> 5
<211> 812

<212> DNA
<213> Glycine max

<220>
<221> unsure
<222> (577)

<220>
<221> unsure
<222> (610)

<220>
<221> unsure
<222> (683)

<220>
<221> unsure
<222> (687)

<220>
<221> unsure
<222> (742)

<220>
<221> unsure
<222> (744)

<220>
<221> unsure
<222> (746)

<220>
<221> unsure
<222> (755)

<220>
<221> unsure
<222> (760)

<220>
<221> unsure
<222> (769)

<220>
<221> unsure
<222> (778)

<220>
<221> unsure
<222> (785) .. (786)

<220>
<221> unsure
<222> (792)

<220>
<221> unsure
<222> (804)

200220" T0E2800T

<400> 5
gcacgaggag cattttccgg gcacgaaact cgaggaattc gcgcatggcg cctccaatcc 60
tctcgctcgc tcttccctcg aacaccggtc gagttctcag cattcaatct cacaccgttc 120
aggggtatgt tggttaataaa tccgctgtct tccctctgca actactggga tatgatgtcg 180
atccaattaa ttccgtgcag ttttcgaatc atacaggata tccgacgttt aagggtcagg 240
ttttgaatgg acagcaactc tgggatctaa tcgaaggcct tgaaggaaat gatttattgt 300
tctatactca cttgctaaca gggtatattg gttcagagtc ttttctaaac actgtattgc 360
aagttgtcag caaacttcgg tcaacaaacc caggtctttc gtatgtatgt gatccagtga 420
tgggtgatga aggaaagctt tatgttcctc aagagctagt atcagtctat cgtgagaagg 480
ttgttccagt agcttcaatg ttgactccca accagtttga agcagaacta ctgacaggct 540
ttaggattca gtctgaagga catggccggg aggcctgntag gcttctccat gcagctgggc 600
cttcaaaggn cataattaca agtataaata tagacgggat tcttctcctc attggcagtc 660
atccaaaaga aaagggagag ccnccngac aatttaagat tgttattcca aaaataacca 720
gcttatttta cggaacggg anancncatg actgnattcn tcttggttng agcataanta 780
cccannacaa ancttgagaa tgcngcgga ct 812

<210> 6
<211> 196
<212> PRT
<213> Glycine max

<220>
<221> UNSURE
<222> (178)

<220>
<221> UNSURE
<222> (189)

<400> 6
Met Ala Pro Pro Ile Leu Ser Leu Ala Leu Pro Ser Asn Thr Gly Arg
1 5 10 15
Val Leu Ser Ile Gln Ser His Thr Val Gln Gly Tyr Val Gly Asn Lys
20 25 30
Ser Ala Val Phe Pro Leu Gln Leu Leu Gly Tyr Asp Val Asp Pro Ile
35 40 45
Asn Ser Val Gln Phe Ser Asn His Thr Gly Tyr Pro Thr Phe Lys Gly
50 55 60
Gln Val Leu Asn Gly Gln Gln Leu Trp Asp Leu Ile Glu Gly Leu Glu
65 70 75 80
Gly Asn Asp Leu Leu Phe Tyr Thr His Leu Leu Thr Gly Tyr Ile Gly
85 90 95
Ser Glu Ser Phe Leu Asn Thr Val Leu Gln Val Val Ser Lys Leu Arg
100 105 110
Ser Thr Asn Pro Gly Leu Ser Tyr Val Cys Asp Pro Val Met Gly Asp
115 120 125
Glu Gly Lys Leu Tyr Val Pro Gln Glu Leu Val Ser Val Tyr Arg Glu
130 135 140
Lys Val Val Pro Val Ala Ser Met Leu Thr Pro Asn Gln Phe Glu Ala
145 150 155 160

Glu Leu Leu Thr Gly Phe Arg Ile Gln Ser Glu Gly His Gly Arg Glu
165 170 175

Ala Xaa Arg Leu Leu His Ala Ala Gly Pro Ser Lys Xaa Ile Ile Thr
180 185 190

Ser Ile Asn Ile
195

<210> 7
<211> 773
<212> DNA
<213> Triticum aestivum

<400> 7
atggcgcggc cgccgaccc atccgctcgc ctgccgtctg acaccgccc tgtgctcagc 60
atccagtcce acaccgtcca ggggtatggt ggcaacaaat cggccgtctt tcccctgcag 120
ctccttggtc ttgatgtgga tccaataaac tctgtacagt tttctaatca tacaggatac 180
ccaacattta gagggctcagt tcttaatggc aaacagctct gggaacttat tgaaggactg 240
gaggaaaatc agctgcttca ttatacccat ttattaacag gttatatagg ctcaagtttc 300
tttttagata ctgtgctaca agttgttgag aaattgcat cagttaatcc tgatcttgta 360
tatgtttgtg acccagttct aggtgatgaa ggaaaactat atgttcctca ggagctaata 420
tctgtttatc aacagaaggt tgttcaggt gcttcaatgc ttacaccta ccaatttgaa 480
gttgaactac ttactggatt gaggatcacc tccgaaggag atgggttgac agcttgtaat 540
accctccaca gtgccggacc acagaaggtg gttataacta gtgctcttat tgaaggtaag 600
ctgctcctta tgcgaagtca caaaaaaaca gaggaacaac agccagaaca atttaagatt 660
gagataccaa agatacctgc atatttcacg ggaactgag atttgacaac tgctctccta 720
ctaggatgga gtaataaata tctgatatac ctggaggggg ggccgtacca aat 773

<210> 8
<211> 256
<212> PRT
<213> Triticum aestivum

<400> 8
Met Ala Arg Pro Pro Ile Leu Ser Val Ala Leu Pro Ser Asp Thr Gly
1 5 10 15
Arg Val Leu Ser Ile Gln Ser His Thr Val Gln Gly Tyr Val Gly Asn
20 25 30
Lys Ser Ala Val Phe Pro Leu Gln Leu Leu Gly Phe Asp Val Asp Pro
35 40 45
Ile Asn Ser Val Gln Phe Ser Asn His Thr Gly Tyr Pro Thr Phe Arg
50 55 60
Gly Ser Val Leu Asn Gly Lys Gln Leu Trp Glu Leu Ile Glu Gly Leu
65 70 75 80
Glu Glu Asn Gln Leu Leu His Tyr Thr His Leu Leu Thr Gly Tyr Ile
85 90 95
Gly Ser Val Ser Phe Leu Asp Thr Val Leu Gln Val Val Glu Lys Leu
100 105 110
Arg Ser Val Asn Pro Asp Leu Val Tyr Val Cys Asp Pro Val Leu Gly
115 120 125

Asp Glu Gly Lys Leu Tyr Val Pro Gln Glu Leu Ile Ser Val Tyr Gln
 130 135 140

Gln Lys Val Val Pro Val Ala Ser Met Leu Thr Pro Asn Gln Phe Glu
 145 150 155 160

Val Glu Leu Leu Thr Gly Leu Arg Ile Thr Ser Glu Glu Asp Gly Leu
 165 170 175

Thr Ala Cys Asn Thr Leu His Ser Ala Gly Pro Gln Lys Val Val Ile
 180 185 190

Thr Ser Ala Leu Ile Glu Gly Lys Leu Leu Leu Ile Gly Ser His Lys
 195 200 205

Lys Thr Glu Glu Gln Gln Pro Glu Gln Phe Lys Ile Glu Ile Pro Lys
 210 215 220

Ile Pro Ala Tyr Phe Thr Gly Thr Gly Asp Leu Thr Thr Ala Leu Leu
 225 230 235 240

Leu Gly Trp Ser Asn Lys Tyr Pro Asp Ile Leu Glu Gly Gly Tyr Gln
 245 250 255

<210> 9
 <211> 828
 <212> DNA
 <213> Zea mays

<220>
 <221> unsure
 <222> (74)

<400> 9
 atgctggtgt cattgactgc acctagctc tgtgcaaaaa agttcactgg cccacacccat 60
 tttcttgagg gaangtttgt ccccccacct atttttaaac aattacggga cttcagctcc 120
 tcctttaccc tgggcacatc aatgtgtgtg agaattggaa agctccatc tgttgaaatt 180
 tcatctctca gggagaacta ttttccctt gaacttctt agagtcaagt gatgtctgat 240
 ccatttgatc agttccttaa atgggttgat gaagcagtaa cagccgggtc cggctctcgt 300
 gagcccaatg caatggcttt gacaactgcc aacaaggaag gaaaacctt ttcgaggatg 360
 gttcttttaa agggagttga taaacagga tttgtttggt atacaaatta tggtagccgg 420
 aaggcgcatg acttgtgtga aaaccctaac gcagcactcc ttttctactg gaatgagatg 480
 aaccgtcagg taagagttga agggtcagtt gagaagggtc cagaagctga atcagataaa 540
 tatttccaca gccgcccacg tggagtcag cttggtgcca tagtcagcaa gcagagtact 600
 gtaattgctg gaagagaagt tcttcaacag gattacaaga aattggaaca aaaatattct 660
 gatgggagct tgattccaaa acctgaatat tgggggtggc acaaattgac accgacactt 720
 tttgagttct ggcaaggaca acagtctcga ctgcatgacc ggttacaata ctgcagaga 780
 gaagtagatg ggagcacagt gtggcacatc gagaggttgt ccccttga 828

<210> 10
 <211> 275
 <212> PRT
 <213> Zea mays

<220>
 <221> UNSURE
 <222> (25)

<400> 10
Met Leu Val Ser Leu Thr Ala Pro Lys Leu Cys Ala Lys Lys Phe Thr
1 5 10 15
Gly Pro His His Phe Leu Gly Gly Xaa Phe Val Pro Pro Pro Ile Leu
20 25 30
Asn Gln Leu Arg Asp Phe Ser Ser Ser Phe Thr Leu Gly Thr Ser Met
35 40 45
Cys Val Arg Ile Gly Lys Ala Pro Ser Val Glu Ile Ser Ser Leu Arg
50 55 60
Glu Asn Tyr Ile Ser Pro Glu Leu Leu Glu Ser Gln Val Met Ser Asp
65 70 75 80
Pro Phe Asp Gln Phe Leu Lys Trp Phe Asp Glu Ala Val Thr Ala Gly
85 90 95
Pro Gly Leu Arg Glu Pro Asn Ala Met Ala Leu Thr Thr Ala Asn Lys
100 105 110
Glu Gly Lys Pro Ser Ser Arg Met Val Leu Leu Lys Gly Val Asp Lys
115 120 125
Gln Gly Phe Val Trp Tyr Thr Asn Tyr Gly Ser Arg Lys Ala His Asp
130 135 140
Leu Cys Glu Asn Pro Asn Ala Ala Leu Leu Phe Tyr Trp Asn Glu Met
145 150 155 160
Asn Arg Gln Val Arg Val Glu Gly Ser Val Glu Lys Val Pro Glu Ala
165 170 175
Glu Ser Asp Lys Tyr Phe His Ser Arg Pro Arg Gly Ser Gln Leu Gly
180 185 190
Ala Ile Val Ser Lys Gln Ser Thr Val Ile Ala Gly Arg Glu Val Leu
195 200 205
Gln Gln Asp Tyr Lys Lys Leu Glu Gln Lys Tyr Ser Asp Gly Ser Leu
210 215 220
Ile Pro Lys Pro Glu Tyr Trp Gly Gly Tyr Lys Leu Thr Pro Thr Leu
225 230 235 240
Phe Glu Phe Trp Gln Gly Gln Gln Ser Arg Leu His Asp Arg Leu Gln
245 250 255
Tyr Ser Gln Arg Glu Val Asp Gly Ser Thr Val Trp His Ile Glu Arg
260 265 270
Leu Ser Pro
275
<210> 11
<211> 555
<212> DNA
<213> Oryza sativa

10081301.022002

<220>
<221> unsure
<222> (220)

<220>
<221> unsure
<222> (249)

<220>
<221> unsure
<222> (353)

<220>
<221> unsure
<222> (356)

<220>
<221> unsure
<222> (382)

<220>
<221> unsure
<222> (388)

<220>
<221> unsure
<222> (393)

<220>
<221> unsure
<222> (426)

<220>
<221> unsure
<222> (430)

<220>
<221> unsure
<222> (434)

<220>
<221> unsure
<222> (437)

<220>
<221> unsure
<222> (473)

<220>
<221> unsure
<222> (475)

<220>
<221> unsure
<222> (502)

<220>
<221> unsure
<222> (506)

<220>
 <221> unsure
 <222> (519)

 <220>
 <221> unsure
 <222> (524)

 <220>
 <221> unsure
 <222> (532)

 <220>
 <221> unsure
 <222> (536).. (537)

<220>
 <221> unsure
 <222> (545)

<220>
 <221> unsure
 <222> (549)

<220>
 <221> unsure
 <222> (551)

<400> 11
 atgctggtat cattgactgc accaaagctc tctgcaaaaa aatttaccgg tccacaccat 60
 tttcttgggg gtagatttgt tccccacct attgtgagca aatataagct tcatcttcct 120
 ccatatcccg gtacctcaat gtgtgtgaga attgaaaaag ctccatctgt tgacatttca 180
 tctctaagaa gaaattacat ctccccctgaa cttctcgagn aacaggtgat gcctgatcca 240
 tttgataant tcgtttagatg gtttgatgaa ctgttacgct ggctacgtga accaaatgct 300
 atgggtaaca actccgataa ggagggaaaa ctgcgcaaag aatggccttt aangnggttg 360
 ataaccacgg atttttttggg ancaattntg ganccaaaag gacatgatta cctgaaacca 420
 aatgcngccn gttncantgg aaggaataac ggcagtaaaa taaagtctgt canangtcca 480
 gaaaagactg agatttcaaa cncanagga ataacttgng aatntcacac angcanncat 540
 ctganggant ncagg 555

<210> 12
 <211> 110
 <212> PRT
 <213> Oryza sativa

<220>
 <221> UNSURE
 <222> (74)

<220>
 <221> UNSURE
 <222> (83)

<400> 12
 Met Leu Val Ser Leu Thr Ala Pro Lys Leu Cys Ala Lys Lys Phe Thr
 1 5 10 15
 Gly Pro His His Phe Leu Gly Gly Arg Phe Val Pro Pro Pro Ile Val
 20 25 30

Ser Lys Tyr Lys Leu His Leu Pro Pro Tyr Pro Gly Thr Ser Met Cys
35 40 45

Val Arg Ile Gly Lys Ala Pro Ser Val Asp Ile Ser Ser Leu Arg Arg
50 55 60

Asn Tyr Ile Ser Pro Glu Leu Leu Glu Xaa Gln Val Met Pro Asp Pro
65 70 75 80

Phe Asp Xaa Phe Val Arg Trp Phe Asp Glu Leu Leu Arg Trp Leu Arg
85 90 95

Glu Pro Asn Ala Met Val Asn Asn Ser Asp Lys Glu Gly Lys
100 105 110

<210> 13
<211> 864
<212> DNA
<213> Glycine max

<400> 13
atgttgaaaa gggaagatgt tgatggtaca ggcattaaac ctgatatggt ggtttctttg 60
acagcccaaa gattaggtgc aaagaagttt ggtggctct accactttct aggaggtaga 120
tttgtccac ctgctattgc agaaaaatat aagcttatac ttccaccata tcctggaact 180
tccatgtgtg ttcgaattgg aaggcctcca cgtattgata tctcagctct aagagagaac 240
tatatctctc cagaatttct tgaagagcag gtggaggctg acccttttaa tcagtttcat 300
aaatggttta atgatgcatt ggctgctggt ttgaaggaac caaatgctat gtccttgta 360
actgtaggga aggacggaaa accctcatca agaattggtat tgctaaaagg cttggataag 420
gaaggatttg tgtggtacac aaactatgaa agtcgaaagg cacgtgaatt atctgaaaat 480
ccacgtgcat cacttctttt ttactgggat ggttttaaacc ggcaggtacg ggtggaagg 540
cctgttcaga aagtctctga tgaggaatca gaacagtatt tccatagccg ccctagaggt 600
agtcagattg gagcaatagt cagcaagcag agtactgtag tgccgggtag gcattgttct 660
tatcaggagt acaaagagct ggaagaaaaa tactctgatg gaagttaaat ccctaaacct 720
aagaactggg gtggatatag gctaacacca caacttttcg agttttggca agggcagaaa 780
tctcgcttgc atgacaggtt gcaataact ccccatgaga tcaatggaca acggctgtgg 840
aaggttgacc ggttggtccc ttga 864

<210> 14
<211> 287
<212> PRT
<213> Glycine max

<400> 14
Met Leu Lys Arg Glu Asp Val Asp Gly Thr Gly Ile Lys Pro Asp Met
1 5 10 15

Leu Val Ser Leu Thr Ala Pro Arg Leu Gly Ala Lys Lys Phe Gly Gly
20 25 30

Pro His His Phe Leu Gly Gly Arg Phe Val Pro Pro Ala Ile Ala Glu
35 40 45

Lys Tyr Lys Leu Ile Leu Pro Pro Tyr Pro Gly Thr Ser Met Cys Val
50 55 60

Arg Ile Gly Arg Pro Pro Arg Ile Asp Ile Ser Ala Leu Arg Glu Asn
65 70 75 80

Tyr Ile Ser Pro Glu Phe Leu Glu Glu Gln Val Glu Ala Asp Pro Phe
85 90 95

Asn Gln Phe His Lys Trp Phe Asn Asp Ala Leu Ala Ala Gly Leu Lys
 100 105 110

Glu Pro Asn Ala Met Ser Leu Ser Thr Val Gly Lys Asp Gly Lys Pro
 115 120 125

Ser Ser Arg Met Val Leu Leu Lys Gly Leu Asp Lys Glu Gly Phe Val
 130 135 140

Trp Tyr Thr Asn Tyr Glu Ser Arg Lys Ala Arg Glu Leu Ser Glu Asn
 145 150 155 160

Pro Arg Ala Ser Leu Leu Phe Tyr Trp Asp Gly Leu Asn Arg Gln Val
 165 170 175

Arg Val Glu Gly Pro Val Gln Lys Val Ser Asp Glu Glu Ser Glu Gln
 180 185 190

Tyr Phe His Ser Arg Pro Arg Gly Ser Gln Ile Gly Ala Ile Val Ser
 195 200 205

Lys Gln Ser Thr Val Val Pro Gly Arg His Val Leu Tyr Gln Glu Tyr
 210 215 220

Lys Glu Leu Glu Glu Lys Tyr Ser Asp Gly Ser Leu Ile Pro Lys Pro
 225 230 235 240

Lys Asn Trp Gly Gly Tyr Arg Leu Thr Pro Gln Leu Phe Glu Phe Trp
 245 250 255

Gln Gly Gln Lys Ser Arg Leu His Asp Arg Leu Gln Tyr Thr Pro His
 260 265 270

Glu Ile Asn Gly Gln Arg Leu Trp Lys Val Asp Arg Leu Ala Pro
 275 280 285

<210> 15
 <211> 456
 <212> DNA
 <213> Triticum aestivum

<400> 15
 caccaggata agcagggatt cgtttggtac acaaattacg gtagccaaaa agcacatgat 60
 ttatcggaat attcaaatgc ggcacttctt ttctactgga atgagatgaa ccgacagggt 120
 agagtagaag ggtcgggtca gaaggtctca gaagaagaat ctgagaagta tttccacagc 180
 cgcccacgtg gaagtcagct tggtgcaatt gtttagcaagc agagcactgt catttcttga 240
 agagaagttc tccaacaagc gtacaaggaa ttggagcaaaa aatattctga cggtagcttc 300
 atcccaaaaac ccgattactg ggggtggctac aagttgacac caaatctttt tgagttctgg 360
 caaggccagc agtctcgtct gcatgaccgg ctacagtatt cacagcgaga attaggtggg 420
 agtacagaat ggcacatcca aaggttggtcc ccttga 456

<210> 16
 <211> 150
 <212> PRT
 <213> Triticum aestivum

<400> 16
 His Glu Asp Lys Gln Gly Phe Val Trp Tyr Thr Asn Tyr Gly Ser Gln
 1 5 10 15

Lys Ala His Asp Leu Ser Glu Asn Ser Asn Ala Ala Leu Leu Phe Tyr
 20 25 30
 Trp Asn Glu Met Asn Arg Gln Val Arg Val Glu Gly Ser Val Gln Lys
 35 40 45
 Val Ser Glu Glu Glu Ser Glu Lys Tyr Phe His Ser Arg Pro Arg Gly
 50 55 60
 Ser Gln Leu Gly Ala Ile Val Ser Lys Gln Ser Thr Val Ile Ser Arg
 65 70 75 80
 Glu Val Leu Gln Gln Ala Tyr Lys Glu Leu Glu Gln Lys Tyr Ser Asp
 85 90 95
 Gly Ser Phe Ile Pro Lys Pro Asp Tyr Trp Gly Gly Tyr Lys Leu Thr
 100 105 110
 Pro Asn Leu Phe Glu Phe Trp Gln Gly Gln Gln Ser Arg Leu His Asp
 115 120 125
 Arg Leu Gln Tyr Ser Gln Arg Glu Leu Gly Gly Ser Thr Glu Trp His
 130 135 140
 Ile Gln Arg Leu Ser Pro
 145 150